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Case Report

Angel Aligner KiD: Clear Aligners for Interceptive Orthodontic Treatment

angel aligner KiD

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No need to hide your smile
Angel Aligner is here


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Introduction

Angel Aligner KiD is a proactive approach to intercept occlusal issues during the transition from mixed to permanent dentition. It is designed to optimize dentofacial development in growing patients through advanced technological innovation. By managing arch space, modulating dentoalveolar discrepancies and correcting crowding, the interceptive orthodontic treatment with clear aligners can contribute to achieving occlusal harmony, improved function, and enhanced dentofacial esthetics in the growing patient.

Challenges in Clear Aligner Treatment in Growing Patients

Clear aligner treatment in mixed dentition presents unique biomechanical and clinical challenges. Unlike adult cases, interceptive treatment must consider ongoing craniofacial growth, variable eruption patterns, and transitional occlusion.

One of the primary challenges is achieving predictable control of partially erupted tooth movement with reduced clinical crown height. The decision-making on anchorage could also be complex due to exfoliating primary teeth and erupting permanent successors. Additionally, compliance remains a critical factor, particularly in pediatric patients, where wear time consistency may directly influence treatment outcomes.

The clinician must emphasize dentoalveolar development and incorporate space management strategies that accommodate future eruption. Moreover, attachment design and aligner retention may be less stable in mixed dentition due to morphological variability.

Despite these challenges, technological innovations in aligner material, digital treatment planning, and pediatric-specific design features have improved the predictability of interceptive clear aligner therapy.

Angel Aligner KiD: Pediatric-Specific Features

Angel Aligner KiD has been specifically engineered to address the biological and biomechanical characteristics of growing patients.

Key features include:

- **Eruption guide design**, allowing space reservation for unerupted permanent teeth.
- **Optimized trim line and retention protocols** adapted for shorter clinical crowns.
- **Space management protocols**, including arch development and dentoalveolar expansion strategies.

These features allow the clinician to intervene early while respecting natural growth patterns and minimizing overtreatment.

Clinical Advantages of Angel Aligner KiD

Interceptive treatment with Angel Aligner KiD offers several clinical benefits:

1. **Early arch development**
   Proactive space management reduces the severity of future crowding and may decrease the need for extractions in comprehensive treatment.
2. **Improved oral hygiene**
   Removability facilitates better plaque control compared to fixed appliances, particularly important in pediatric patients.
3. **Functional improvement**
   Early correction of transverse discrepancies, anterior crossbite, and mild sagittal imbalances contributes to improved masticatory efficiency and muscular balance.
4. **Psychosocial benefits**
   Improved smile aesthetics during formative years may positively influence self-esteem and social interaction.

Conclusion

Angel Aligner KiD represents a forward-thinking approach to pediatric orthodontics by combining digital innovation with growth-oriented biomechanics. While clear aligner therapy in mixed dentition presents inherent challenges, pediatric-specific design modifications enhance clinical control and treatment predictability.

By managing arch space, guiding eruption, and addressing early dentoalveolar discrepancies, Angel Aligner KiD contributes to functional equilibrium, occlusal harmony, and balanced dentofacial development. When carefully planned and monitored, it can serve as an effective interceptive modality that complements the natural growth of patients.

Section	Crowding
Product	KiD1
Malocclusion	Mixed dentition ,Class I Angle's classification, Anterior Crossbite
Protocols and features	Arch expansion

BIO Dr. Mercedes Revenaz

Mercedes Revenaz has been dedicating her career as a specialist in orthodontics, focusing on the prevention, diagnosis, and treatment of dental malocclusions and related disorders for over 25 years. Her mission consists to offer growing and adults patients top-notch treatments through state-of-the-art technology. She achieved her DDS at the University of Ferrara in 1999, after which she further gained her post-graduate degree in Orthodontics at the University La Sapienza of Rome in 2003. Afterwards, she completed her educational career and training through several ongoing university programs and valuable private courses. Her interest in 3D innovation for diagnosis and treatment planning led her to pursue advanced technological approaches, initially in the field of orthognathic surgery and subsequently in orthodontics.

Patient introduction

Age	8 years and 6 months
Gender	Female
Patient initials	G.B.
Treatment time	8 months
Number of aligners	30 (20 +10)

Chief complaint

The patient was concerned about her front teeth being misaligned, particularly the anterior crossbite, and the crowding in her smile.
She and her parents were aware that this bite was not functional and could affect chewing and jaw development. They were motivated by aesthetic concerns and preferred a treatment that would be comfortable, discreet, and convenient, allowing her teeth to align naturally without the appearance of traditional braces..

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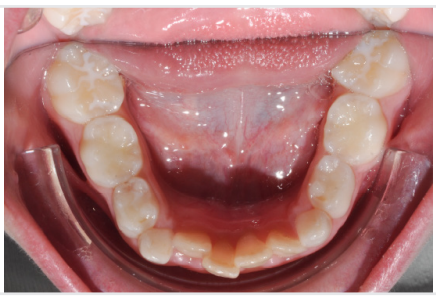
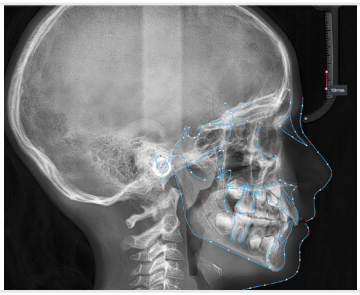
Initial Photos and datas







EBO

Misurazione	Normale	Deviazione standard	Valore	Descrizione dei risultati della misurazione
Maxillary Position	82.0	3.5	81.16	Normal position of maxilla relative to the Sella-Nasion line
Mandibular Position	80.0	3.5	78.05	Normal position of mandible relative to the Sella-Nasion line
Sagittal Jaw Relation	2.0	2.5	3.11	Normal position of jaw
Maxillary Inclination	8.0	3.0	8.76	Normal steepness of palatal plane, no abnormal rotation of maxilla
Mandibular Inclination	33.0	2.5	32.88	Normal mandibular plane steepness
Vertical Jaw Relation	25.0	6.0	24.11	Normal relative position of maxilla and mandible
Maxillary Incisor Inclination	110.0	6.0	113.39	Normal labial inclination of the upper central incisor relative to the maxillary plane
Mandibular Incisor Inclination	94.0	7.0	96.84	Normal labial inclination of the lower central incisor relative to the mandibular plane
Mandibular Incisor Compensation(mm)	2.0	2.0	1.81	Protrusion of lower central incisor
Overjet(mm)	3.5	2.5	3.67	Normal overjet
Overbite(mm)	2.0	2.5	1.71	Normal overbite
Interincisal Angle	132.0	6.0	125.65	Large relative protrusion of upper and lower central incisor

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Clinical examination and diagnosis

The patient presented with a skeletal Class I relationship and a mesofacial growth pattern, indicating balanced sagittal and vertical skeletal proportions. Dental examination revealed a Class I molar and canine relationship bilaterally. The patient was in the mixed dentition phase.
Significant dental crowding was observed in both arches, consistent with a dentoalveolar discrepancy. Midline deviations were present, affecting dental symmetry and occlusal harmony. The maxillary lateral incisors were in crossbite, contributing to anterior transverse discrepancy and functional imbalance.

Periodontal evaluation revealed early signs of periodontal disease, primarily affecting tooth 41. Radiographic assessment demonstrated root convergence of teeth 11 and 21, indicating compromised root parallelism.
Overall, the initial presentation was characterized by dentoalveolar crowding, transverse discrepancies, occlusal asymmetries, and early periodontal involvement within an otherwise favorable skeletal framework, requiring a carefully planned orthodontic approach to ensure functional stability and periodontal preservation.

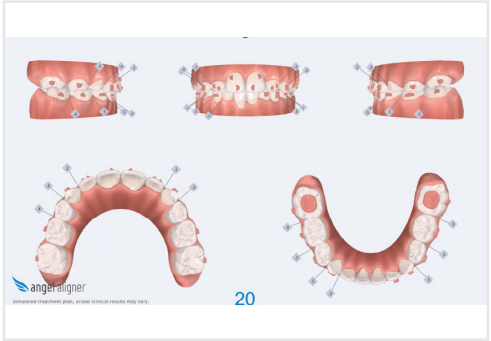
Treatment plan

The orthodontic treatment plan was designed to address dentoalveolar crowding, transverse discrepancies, and midline deviations, while maintaining optimal periodontal health and achieving stable Class I molar and canine relationships. Specific objectives included correction of anterior crossbite, expansion and coordination of the arches, derotation of upper molars, preservation of incisor inclinations, derotation of lower posterior teeth with lingual root torque, leveling of the curve of Spee through incisor intrusion and controlled extrusion of deciduous teeth, and normalization of incisor inclinations. A clear aligner–based approach was selected to allow precise, controlled tooth movement, with particular attention to root parallelism in the anterior region. The treatment was carried out in two phases: an initial phase of 20 aligners focused on primary alignment, space redistribution, and preliminary correction of malocclusion, followed by a refinement phase of 10 aligners aimed at finalizing tooth positioning, improving intercuspation, optimizing overbite and overjet, and enhancing overall occlusal stability. The refinement phase was considered an integral component of the treatment strategy and is explicitly highlighted to emphasize its role in achieving optimal finishing and long-term functional and aesthetic outcomes.

Treatment details

To correct the anterior crossbite, occlusal pads were placed on teeth 36 and 46 to provide localized bite opening and facilitate proper anterior guidance. Optimized double semielipsoidal attachments were placed on the upper anterior teeth to ensure controlled root divergence and precise torque expression. Posterior teeth received lingual root torque to maintain proper axial inclinations, while interproximal reduction (IPR) was performed on deciduous teeth to create space as needed, carefully avoiding any proclination of the lower incisors.

Treatment setup

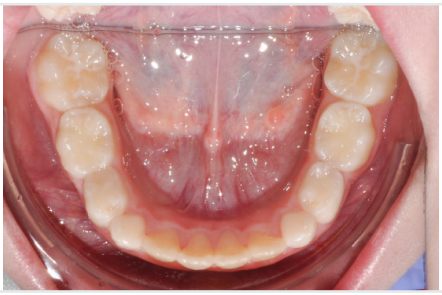


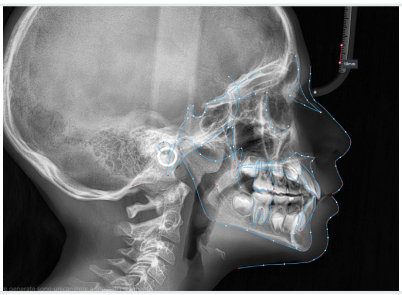
Treatment results







EBO

Measurement	Normal	Standard Deviation	Value	Description of Measurement Results
Maxillary Position	82.0	3.5	81.77	Normal position of maxilla relative to the Sella-Nasion line
Mandibular Position	80.0	3.5	78.68	Normal position of mandible relative to the Sella-Nasion line
Sagittal Jaw Relation	2.0	2.5	3.09	Normal position of jaw
Maxillary Inclination	8.0	3.0	8.21	Normal steepness of palatal plane, no abnormal rotation of maxilla
Mandibular Inclination	33.0	2.5	33.61	Normal mandibular plane steepness
Vertical Jaw Relation	25.0	6.0	25.4	Normal relative position of maxilla and mandible
Maxillary Incisor Inclination	110.0	6.0	111.13	Normal labial inclination of the upper central incisor relative to the maxillary plane
Mandibular Incisor Inclination	94.0	7.0	94.94	Normal labial inclination of the lower central incisor relative to the mandibular plane
Mandibular Incisor Compensation(mm)	2.0	2.0	2.42	Protrusion of lower central incisor
Overjet(mm)	3.5	2.5	2.73	Normal overjet
Overbite(mm)	2.0	2.5	1.6	Normal overbite
Interincisal Angle	132.0	6.0	128.53	Normal relative protrusion of upper and lower central incisor

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Treatment results

Before treatment

After treatment

Before treatment

After treatment

Before treatment

After treatment

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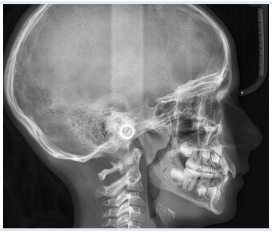
Treatment results

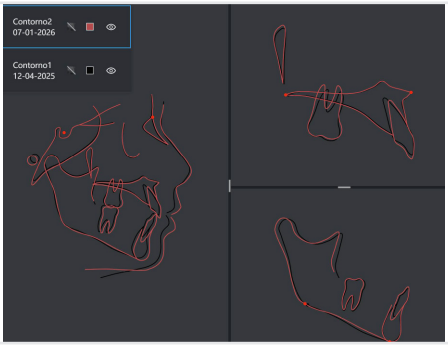
Before treatment



After treatment

EBO

Measurement	Normal	Standard Deviation	Contour 1 Value	Contour 2 Value
Maxillary Position	82.0	3.5	81.16	81.77
Mandibular Position	80.0	3.5	78.05	78.68
Sagittal Jaw Relation	2.0	2.5	3.11	3.09
Maxillary Inclination	8.0	3.0	8.76	8.21
Mandibular Inclination	33.0	2.5	32.88	33.61
Vertical Jaw Relation	25.0	6.0	24.11	25.4
Maxillary Incisor Inclination	110.0	6.0	115.19	110.45
Mandibular Incisor Inclination	94.0	7.0	95.04	94.94
Mandibular Incisor Compensation(mm)	2.0	2.0	2.04	2.42
Overjet(mm)	3.5	2.5	3.25	3.12
Overbite(mm)	2.0	2.5	0.53	1.89
Interincisal Angle	132.0	6.0	125.66	129.22



Treatment experience

Early intervention with clear aligners provided an effective means of reducing the complexity of the developing malocclusion, highlighting the importance of timely initiation and adherence to the prescribed treatment schedule. From the patient's perspective, the aligners were highly appreciated for their comfort, aesthetics, and ease of use, which contributed to excellent compliance and a positive treatment experience.

For the clinician, the clear aligner system allowed precise control over tooth movement, including root torque, derotation, and vertical adjustments, while minimizing the need for fixed appliances. The planned attachments, occlusal pads, and IPR strategies facilitated predictable biomechanics, enabling the clinician to achieve the treatment objectives efficiently while closely monitoring tooth movement and occlusal development. Overall, the combination of patient-centered comfort and clinician-controlled mechanics resulted in a smooth, collaborative, and successful early treatment process.

Note

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